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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,562	12/04/2000	David R. Smith	500582.20016	4111

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EXAMINER

TAYLOR, BARRY W

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 04/01/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Q11

Office Action Summary

Application No.

09/729,562

Applicant(s)

SMITH ET AL.

Examiner

Barry W Taylor

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randle et al (6,263,047 hereinafter Randle) in view of Lechleider et al (6,091,713 hereinafter Lechleider).

Regarding claims 1, 23, 38. Randle teaches a system and method for determining the suitability of a communication line for xDSL service use via single ended analysis (see figure 4), comprising:

measuring characteristic parameters of at least one communication line to be tested at one end of the at least one communication line (Title, abstract, columns 1-6, figures 5A-5B, 7 and 12, 8A-8B);

determining a plant map of the at least one communication line (Title, abstract, columns 1-6, figures 5A-5B, 7 and 12, 8A-8B);

determining a transfer function representative of the plant map of the at least one communication line (Title, abstract, columns 1-6, figures 5A-5B, 7 and 12, 8A-8B); and

analyzing the transfer function so as to qualify the at least one communication line (Title, abstract, columns 1-6, figures 5A-5B, 7 and 12, 8A-8B).

Randle does not explicitly show determining the suitability of a communication line for xDSL service. However, one of ordinary skill in the art would readily recognize the importance of characterizing the loading pattern of the telecommunications transmission line with respect to wire gauge, length, presence of bridge taps and load coils when qualifying existing copper lines for xDSL services.

If not, Lechleider discloses the importance of using existing copper line (see column 1—extremely cost effective) when deploying xDSL services. Lechleider realizes that xDSL services are limited by the transmission characteristics of the subscriber loop wherein the characteristics of the loop depend on the length of the copper line, its gauge, the presence of taps, quality of splices, the integrity of the shielding, load coils, impedance mismatches and interference (col. 1 lines 5-67, col. 2 lines 1-60, col. 3 lines 1-67, columns 5-12). Therefore, before a particular subscriber can utilize xDSL technology, the service provider has to determine the viability of deploying xDSL to that

subscriber by estimating the noise that an xDSL or other broadband signal will encounter from external sources (i.e. the taps, splices, shielding, load coils, etc.).

Therefore, it would have been obvious for any one of ordinary skill in the art to modify the teachings of Randle to qualify existing copper lines by estimating the noise that an xDSL or other broadband signal will encounter from external sources as taught by Lechleider so that existing copper wires may be used instead of installing new cable and structure thus enabling for service providers to deploy xDSL in a more cost effect manner.

Regarding claim 2. Randle teaches using single-ended analysis to measure and model telecommunications transmission lines (figure 4, col. 8 lines 16-28).

Regarding claim 3. Randle teaches the characteristic parameters includes at least one of a wire gauge (figure 12, col. 3 lines 36-47, col. 4 lines 15-18, col. 5 lines 27-37, col. 6 lines 10-27, col. 11 lines 24-60, col. 17 lines 12+), length (col. 1 lines 38-61, col. 8 line 66 – col. 9 line 12, col. 9 lines 29-67, col. 15 lines 13-38, col. 16 lines 17-54). Lechleider teaches all of the characteristic parameters as well as temperature (see integrity of shielding column 1, col. 9 lines 1-15).

Regarding claim 4. Randle teaches the characteristic parameters include the presence of shorts (col. 1 lines 13-21, figures 3A-3C, col. 7 lines 20-25, col. 9 lines 13-25, col. 10 lines 43-67, col. 12 lines 61-67, col. 13 lines 1-25).

Regarding claim 5. Randle does not explicitly show measuring longitudinal balance.

Lechleider discloses the importance of using existing copper line (see column 1—extremely cost effective) when deploying xDSL services. Lechleider realizes that xDSL services are limited by the transmission characteristics of the subscriber loop wherein the characteristics of the loop depend on the length of the copper line, its gauge, the presence of taps, quality of splices, the integrity of the shielding, load coils, **impedance mismatches** and interference (col. 1 lines 5-67, col. 2 lines 1-60, col. 3 lines 1-67, columns 5-12). Therefore, before a particular subscriber can utilize xDSL technology, the service provider has to determine the viability of deploying xDSL to that subscriber by estimating the noise that an xDSL or other broadband signal will encounter from external sources (i.e. the taps, splices, shielding, load coils, etc.).

Therefore, it would have been obvious for any one of ordinary skill in the art to modify the teachings of Randle to qualify existing copper lines by estimating the noise that an xDSL or other broadband signal will encounter from external sources as taught by Lechleider so that existing copper wires may be used instead of installing new cable and structure thus enabling for service providers to deploy xDSL in a more cost effect manner.

Regarding claim 6. Randle teaches the characteristic parameters include load coils (col. 1 lines 5-11, col. 2 lines 11-17).

Regarding claims 7 and 17. Randle does not explicitly show wideband noise.

Lechleider discloses the importance of using existing copper line (see column 1—extremely cost effective) when deploying xDSL services. Lechleider realizes that xDSL services are limited by the transmission characteristics of the subscriber loop

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wherein the characteristics of the loop depend on the length of the copper line, its gauge, the presence of taps, quality of splices, the integrity of the shielding, load coils, impedance mismatches and interference (col. 1 lines 5-67, col. 2 lines 1-60, col. 3 lines 1-67, columns 5-12). Therefore, before a particular subscriber can utilize xDSL technology, the service provider has to determine the viability of deploying xDSL to that subscriber by estimating the **noise** (col. 1 line 65 – col. 2 line 16, col. 2 lines 53-60, columns 3, 5-9, claim 6) that an xDSL or other broadband signal will encounter from external sources (i.e. the taps, splices, shielding, load coils, etc.).

Therefore, it would have been obvious for any one of ordinary skill in the art to modify the teachings of Randle to qualify existing copper lines by estimating the noise that an xDSL or other broadband signal will encounter from external sources as taught by Lechleider so that existing copper wires may be used instead of installing new cable and structure thus enabling for service providers to deploy xDSL in a more cost effect manner.

Regarding claims 8-9, 18. Randle teaches loop attenuation (see figure 4 wherein the device transmits known pulse waveforms along the copper wire which is used to show attenuations indicative of various conditions, including the presence or absence of shorts, opens, taps, different wire gauges, effects of water, etc).

Regarding claims 10, 28, and 43. Randle shows a plant map used for determining the presence of characteristics and anomalies (see “modeled” and “modeling” –abstract, columns 1-6).

Regarding claim 11. Randle shows the characteristics of length (col. 1 lines 38-61, col. 8 line 66 – col. 9 line 12, col. 9 lines 29-67, col. 15 lines 13-38, col. 16 lines 17-54), shorts (col. 1 lines 13-21, figures 3A-3C, col. 7 lines 20-25, col. 9 lines 13-25, col. 10 lines 43-67, col. 12 lines 61-67, col. 13 lines 1-25), and damage to the communication line (see lightening strikes column 1).

Regarding claims 12, 29, and 44. Randle shows using complex impedance (col. 8 line 35 – col. 9 line 60).

Regarding claims 13 and 19. Randle shows performing circuit-modeling analysis on the plant map (figures 5A-5B, figure 7, figure 12).

Regarding claims 14 and 20. Randle shows using a transfer function (figure 12) representative of the plant map.

Regarding claims 15-16, 21-22, 30-31, 45-46. Randle does not explicitly show using SNR and bit rate.

Lechleider discloses the importance of using existing copper line (see column 1—extremely cost effective) when deploying xDSL services. Lechleider realizes that xDSL services are limited by the transmission characteristics of the subscriber loop wherein the characteristics of the loop depend on the length of the copper line, its gauge, the presence of taps, quality of splices, the integrity of the shielding, load coils, impedance mismatches and interference (col. 1 lines 5-67, col. 2 lines 1-60, col. 3 lines 1-67, columns 5-12). Therefore, before a particular subscriber can utilize xDSL technology, the service provider has to determine the viability of deploying xDSL to that subscriber by estimating the noise that an xDSL or other broadband signal will

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encounter from external sources (i.e. the taps, splices, shielding, load coils, etc.).

Lechleider uses power level and bit rate to qualify the communication line (col. 6 line 51+).

Therefore, it would have been obvious for any one of ordinary skill in the art to modify the teachings of Randle to qualify existing copper lines by estimating the noise that an xDSL or other broadband signal will encounter from external sources as taught by Lechleider so that existing copper wires may be used instead of installing new cable and structure thus enabling for service providers to deploy xDSL in a more cost effective manner.

Regarding claims 24-25, 39-40. See figure 4.

Claims 26 and 41 are rejected for the same reason as method claims 4-8 listed above.

Regarding claims 27 and 42. See figure 4.

Regarding claims 32-33. Randle teaches loop attenuation (columns 1-6, col. 8 lines 7-65, col. 9 line 51 – col. 19 line 24, see figure 4 wherein the device transmits known pulse waveforms along the copper wire which is used to show attenuations indicative of various conditions, including the presence or absence of shorts, opens, taps, different wire gauges, effects of water, etc).

Regarding claims 34-36. Randle shows comparing the trace simulation with actual trace and changing parameters of the trace to match the actual trace (col. 11 line 24 – col. 19 line 24, figures 4, 5A-5B, 7 and 12).

Regarding claim 37. Randle shows using backscatter (see figure 12 wherein portions of the trace follows an impairment and has a unique shape for each gauge due to different parameters).

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry W. Taylor whose telephone number is (703) 305-4811. The examiner can normally be reached on Monday-Friday from 6:30am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703) 305-4708. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 customer service Office whose telephone number is (703) 306-0377.


CURTIS KUNTZ
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